Department of Ophthalmology and Visual Sciences

Instruction begins in the first year with examination of the eye and a lecture on various aspects of ocular disease. During the second year, students will receive a refresher lecture and lab on direct ophthalmoscopy as well as a lecture on opthalmic manifestations of systemic disease and primary ocular disease. During the third year, students are given the opportunity during the surgery clerkship to spend four weeks on the ophthalmology services. In addition, during the third year there are lectures given to students during the Internal Medicine rotations. In the fourth year, a four-week intensive clinical rotation is tailored to students interested in pursuing ophthalmology as a career. Also, research electives are available under the guidance of numerous ophthalmology faculty members for fourth-year students.

Website: http://ophthalmology.wustl.edu

Degrees & Requirements

While the Department of Ophthalmology and Visual Sciences does not offer its own degree, some of the department's courses are open to students in the MD and MSTP (MD/PhD) programs. Further information about the MD and MSTP degrees can be found in the Degrees & Programs Offered (http://bulletin.wustl.edu/medicine/degrees) section of this Bulletin.

Research

M50 Ophth 900

Usha P. Andley, PhD
1114-C McMillan
Phone: 314-362-7167
Molecular basis of cataract; the function of molecular chaperones in cataract; proteomics, imaging and biochemical studies on cell culture and mouse models for crystallin gene mutations linked with cataract; testing drugs to inhibit cataract.

Rajendra S. Apte, MD, PhD
Email: apte@vision.wustl.edu
Innate immunity and immune effector mechanisms in the retina, oxidative stress and cell death, models of developmental angiogenesis and neovascularization, inflammation and photoreceptor survival, macular degeneration.

Steven Bassnett, PhD
1114 McMillan
Phone: 314-362-1604
Eye development, stochastic models of lens growth, stem cell biology, age-related cataract, UV-induced somatic mutation, ocular manifestations of Marfan syndrome, cell death suppression on the optic axis, cell biology of transparent tissues.

Anjali Bhorade, MD
Phone: 314-362-5343
Evaluating the effect of glaucoma on visual function in older adults in the home. Understanding the relationship between vision and driving in older adults with glaucoma.

Shiming Chen, PhD
618 McMillan
Phone: 314-747-4350
The molecular mechanisms regulating photoreceptor gene expression and the implications in understanding photoreceptor development and disease. We are focusing on three transcription factors, CRX, NRL and NR2E3, linked to photoreceptor degenerative diseases. Molecular genetics and biochemical approaches are used to identify the regulatory pathways associated with each factor. Mouse models are used to understand why mutations in these factors cause disease and develop therapeutic strategies, including AAV-gene therapy.

Steven M. Couch, MD
Email: couch@vision.wustl.edu
Orbital inflammatory diseases, surgical techniques and novel treatments of periocular/orbital disease.

Susan M. Culican, MD, PhD
1104 McMillan
Phone: 314-362-9278
Clinical: development of a low-cost, simple visual function task for screening for macular disorders in the primary care setting. Education: examination of the utility of assessment tools for evaluating resident clinical progression during residency training. Development of new metrics to gauge resident progress.

Philip L. Custer, MD
Email: custer@vision.wustl.edu

Thomas A. Ferguson, PhD
1207 McMillan
Phone: 314-362-3745
Molecular basis of immune tolerance and how apoptotic cells tolerize the immune response. The role of immune privilege in the pathogenesis of eye diseases such as age-related macular degeneration (AMD). The role of basal autophagy in the cells of the eye by using the cre-loxP system to delete essential autophagy genes from specific cell types in the eye.

Mae Gordon, PhD
1125 Old Shriners
Phone: 314-362-3716
Ocular hypertension, glaucoma, keratoconus, adenoviral conjunctivitis, randomized clinical trial methodology, patient-reported outcome measures and measurement reliability.
George J. Harocopos, MD
Email: harocopos@vision.wustl.edu
Age-related cataract, ophthalmic pathology.

Didier Hodzic, PhD
620 McMillan
Phone: 314-362-7037
Email: hodzicd@vision.wustl.edu
Cell biology of retinal development and homeostasis in mice, cone and rods cytoarchitecture.

Andrew Huang, MD, MPH
106 McMillan
Phone: 314-362-0403
Ocular surface stem cell biology, molecular therapy for corneal dystrophies and corneal neovascularization, oxidative stress of corneal endothelium, clinical research on dry eye and ocular surface disease.

Humeyra Karacal, MD
Email: karacal@vision.wustl.edu
Treatment of uveitis, prevention of cataracts with anti-oxidants, anti-oxidants in age-related macular degeneration, retinal imaging and analysis using data mining techniques, designing OR equipment to facilitate ophthalmic surgery.

Michael A. Kass, MD
Email: kass@vision.wustl.edu
Principal Investigator of the Ocular Hypertension Treatment Study (OHTS). Diagnosis, treatment and public health aspects of glaucoma.

Vladimir Kefalov, PhD
625 McMillan
Phone: 314-362-4376
Photoreceptor Neurobiology and Retinal Degeneration. We are a sensory neurobiology lab interested in the function of mammalian rod and cone photoreceptors. In addition, we are interested in the mechanisms of neurodegeneration in the retina and are working on developing pharmacological and gene-therapy tools for preventing photoreceptor cell death.

Daniel Kerschensteiner, MD
Email: kerschensteinerd@vision.wustl.edu
To understand the principles that guide the assembly of neural circuits and to decipher the way they process information. We would like to understand the principles that guide the assembly of neural circuits in the retina and to decipher the way they process information and hope to identify features of the retinal circuit architecture that perform particular computations and characterize how they arise during development. We then probe underlying mechanisms of circuit assembly and function through genetically targeted manipulations of specific cells in the retina.

John T. Lind, MD, MS
Email: lindj@vision.wustl.edu
Glaucoma education, resident education, pharmacologic and surgical treatment of glaucoma, ophthalmic microbiology.

Gregg T. Lueder, MD
Email: lueder@vision.wustl.edu
Retinoblastoma, eye misalignment (strabismus), retinopathy of prematurity, abnormal tearing, nasolacrimal disorders, cataracts, glaucoma.

Peter Lukasiewicz, PhD
1003C McMillan
Phone: 314-362-4284
Neurotransmitters, synapses, retinal function in health and disease, retinal information processing.

Todd P. Margolis, MD, PhD
Email: margolist@vision.wustl.edu
1. Cellular and molecular mechanisms that regulate herpes simplex infection neurons.
2. Inexpensive telemedicine for reducing blindness in underserved populations.

John R. Pruett Jr., MD, PhD
1153K East Building
Phone: 314-747-6769
Visual Systems and Cognitive Neuroscience Studies of Autism. Two active areas of research in my lab include: 1) behavioral and imaging studies of visual attention to and processing of eyes and faces in autistic and non-autistic subjects, and 2) developmental studies of large-scale brain networks in autistic and non-autistic subjects using functional connectivity magnetic resonance imaging (fcMRI). Example research rotation projects might include: pilot visual psychophysical studies of intermediate visual processes supporting face perception or — for trainees with computational and/or imaging skills and interests — graph theory-based analyses of visual system subnetwork structure across various groups in fcMRI data we have acquired from ongoing projects.

Kumar Rao, MD
Email: rao@vision.wustl.edu
Surgical and medical therapies for disorders of retina and choroid.

Nathan Ravi, MD, PhD, MS, FAAO
Email: ravi@vision.wustl.edu
Directed toward understanding the pathophysiology of presbyopia and developing medical or surgical treatments for this condition.

Alan Shiels, PhD
1128 McMillan
Phone: 314-362-1637
Email: shiels@vision.wustl.edu
Molecular genetic mechanisms underlying cataract, glaucoma and associated eye disorders: (1) genome-wide linkage analysis and targeted (exome, amplicon) sequencing for discovery of causative or susceptibility genes, and (2) genotype-phenotype and functional expression studies of naturally occurring and
gene-targeted mouse models to characterize pathogenic mechanisms.

**Carla J. Siegfried, MD**  
Email: siegfried@vision.wustl.edu  
My research is focused on ocular oxygen metabolism and the development of open-angle glaucoma. We are studying how the oxygen gradient in the eye is altered in disease states as well as noninvasive methods of measuring corneal oxygen consumption.

**Florentina Soto, PhD**  
Email: sotolucasf@vision.wustl.edu  
Studies in my laboratory aim to identify the molecular basis of dendrites and axons lamination and synapse formation during development and in the adult retina. In addition, we investigate how these molecules could be involved in the development of retinal pathologies including retinal degeneration.

**Larry Tychsen, MD**  
2589 Eye Clinic, St. Louis Children's Hospital  
Phone: 314-454-6026  
Principal investigator on NIH-funded studies of visual brain maldevelopment and repair in infant primates, as well as clinical studies of visuomotor abnormalities in cerebral palsy and pediatric refractive surgery.

**Gregory P. Van Stavern, MD**  
Email: vanstavern@vision.wustl.edu  
Neuroimaging of the visual pathways, Idiopathic Intracranial Hypertension, evidence-based medicine and clinical decision making; using the visual system as a model to study neurologic disorders. A further description of research labs can be found on the Vision Research Community website (http://vrcore.wustl.edu/residentstudentresearchopportunities/RSROHome).

**Faculty**

**Pediatric Ophthalmology Director**  
R. Lawrence Tychsen

**Adult Ophthalmology Clinical Director**  
P. Kumar Rao

**Ophthalmology Research Director**  
Peter Lukasiewicz

**Ophthalmology Education Director**  
Susan Culican

**Ophthalmology Director of Translational Research**  
Rajendra Apte

Visit our website for more information about our faculty (http://ophthalmology.wustl.edu/Faculty) and their appointments.
Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
MA Washington Univ in St. Louis 1950
BA Washington Univ in St. Louis 1948
PHD Washington Univ in St. Louis 1951
MD University of Chicago 1955

**Gregg Jonathan Berdy, MD**
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**Anjali Maruti Bhorade, MD**
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Associate Professor of Occupational Therapy
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**Ronald C Bilchik, MD**
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**Paul J Botelho, MD**
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**Rebekah Arletta Braslow, MD**
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BS Stanford University 1981

**Sean Michael Breit, MD**
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MD Ohio State University 2002

**Larry G Brokering, OD**
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**Marc Richard Brown, OD**
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BA University of Missouri 1974

**Nancy M Buchser, MD**
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)
MD University of Miami 2007

**Dean B Burgess, MD**
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BA Occidental College 1963
MD University of California 1967

**C**

**Carmen F Castellano, OD**
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BS Illinois College of Optometry 1980
BA University of MO St Louis 1977

Earl S Changar, OD
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Shiming Chen, MS, PHD
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Professor of Developmental Biology
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PHD State University of New York 1992
BS Beijing University 1981

Bruce H Cohen, MD
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MD Johns Hopkins University 1980
BA Harvard University 1976

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MD Saint Louis University 1968
BA La Salle University 1964

Pamela Ann Coslick-Fada, OD
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OD University of Missouri 1987

Steven Michael Couch, MD
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MD University of MO Kansas City 2006

John Bruce Crane II, OD
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BA William Jewell College 1987

Susan Margaret Culican, PHD, MD
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PHD Washington Univ in St. Louis 1998
BA Washington Univ in St. Louis 1990
MD Washington Univ in St. Louis 1998

Philip L Custer, MD
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MD Vanderbilt University 1978
BS Vanderbilt University 1974

D

David L Davidson, OD

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OD School Not Listed 1964

Alicia Beatriz De Maria Leiva, PHD
Instructor in Ophthalmology and Visual Sciences (primary appointment)
PHD Universidad de la Republica 2002

John James Deguire, MD
Instructor in Ophthalmology and Visual Sciences (primary appointment)
BA Washington Univ in St. Louis 1983
MD University of Illinois 1988

Paul E Diehl, OD
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)
OD Illinois College of Optometry 1959

E

John Robert Eigenbrodt, OD
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)
OD University of Missouri 1988
BS Southern III Univ Edwardsville 1985

Nicholas Earl Engelbrecht
Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)

Lawrence W Ernst, OD
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)
OD University of Missouri 1990

F

Raymond F Fada Jr, OD
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)
BS University of Michigan 1984
OD University of Missouri 1989

Adam Ross Fedyk
Instructor in Clinical of Ophthalmology & Visual Sciences (primary appointment)

Robert M Feibel, MD
Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
MD Harvard University 1969
BA Johns Hopkins University 1965

Thomas A Ferguson, PHD, MS
Professor of Ophthalmology and Visual Sciences (primary appointment)
Associate Professor of Pathology and Immunology
PHD University of Cincinnati 1982
MS Kent St University 1976
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Appointment</th>
<th>University/College</th>
<th>Date</th>
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<tr>
<td>Kurt W Finklang, OD</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>University of Missouri</td>
<td>1977</td>
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<tr>
<td>Frank Donald Fontana, OD</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>Illinois College of Optometry</td>
<td>1950</td>
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<tr>
<td>Bruce S Frank, MD</td>
<td>Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Assistant Appointment</td>
<td>Washington Univ in St. Louis</td>
<td>1976</td>
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<tr>
<td>Carri S Gaines, OD</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>University of Missouri</td>
<td>1988</td>
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<tr>
<td>Lawrence A Gans, MD</td>
<td>Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Assistant Appointment</td>
<td>Case Western Reserve Univ</td>
<td>1977</td>
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<tr>
<td>Stephen M Garnett, OD</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>Indiana University Bloomington</td>
<td>1978</td>
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<tr>
<td>N. Rex Ghormley, OD</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>Indiana University Bloomington</td>
<td>1980</td>
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<tr>
<td>Mae Etsuko Gordon, PHD, MS</td>
<td>Professor of Ophthalmology and Visual Sciences (primary)</td>
<td>Professor Appointment</td>
<td>Univ of Wisconsin Madison</td>
<td>1979</td>
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<tr>
<td>James M Gordon, MD</td>
<td>Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Assistant Appointment</td>
<td>University of Minnesota</td>
<td>1962</td>
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<tr>
<td>Mark Gilbert Grand, MD</td>
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<td>University of Minnesota</td>
<td>1966</td>
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<tr>
<td>Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
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<td>MD Yale University</td>
<td>1968</td>
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<td>BS Tufts University</td>
<td>1964</td>
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<tr>
<td>Kenneth O Green, MD</td>
<td>Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Assistant Appointment</td>
<td>University of Missouri</td>
<td>1960</td>
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<tr>
<td>BS Saint Louis University</td>
<td>1956</td>
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<tr>
<td>Kevin William Greulich, MD</td>
<td>Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Instructor Appointment</td>
<td>University of Notre Dame</td>
<td>1995</td>
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<tr>
<td>Lawrence A Gans, MD</td>
<td>Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Assistant Appointment</td>
<td>University of Virginia</td>
<td>2000</td>
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<tr>
<td>BA Harvard University</td>
<td>1995</td>
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<tr>
<td>Charles R Harris, UNKNOWN</td>
<td>Instructor in Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Instructor Appointment</td>
<td>University of Missouri</td>
<td>1970</td>
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<td>UNKNOWN University of Missouri</td>
<td>1971</td>
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<tr>
<td>Alexander D Harris, OD, MA</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>University of Missouri</td>
<td>1986</td>
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<tr>
<td>MA Washington Univ in St. Louis</td>
<td>1972</td>
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<tr>
<td>MA University of Evansville</td>
<td>1969</td>
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<tr>
<td>William L Herbold, OD</td>
<td>Adjunct Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Adjunct Appointment</td>
<td>School Not Listed</td>
<td>1967</td>
</tr>
<tr>
<td>James R Hoekel, OD</td>
<td>Instructor in Ophthalmology and Visual Sciences (primary)</td>
<td>Instructor Appointment</td>
<td>School Not Listed</td>
<td>1967</td>
</tr>
<tr>
<td>Nancy Melberg Holekamp, MD</td>
<td>Professor of Clinical Ophthalmology and Visual Sciences (primary)</td>
<td>Professor Appointment</td>
<td>University of Missouri Columbia</td>
<td>1999</td>
</tr>
<tr>
<td>BS University of Missouri</td>
<td>1990</td>
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<td></td>
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<tr>
<td>OD University of MO Columbia</td>
<td>1994</td>
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</tbody>
</table>
BA Wellesley College 1985  
MD Johns Hopkins University 1989  

**Augustine Richard Hong, MD**  
Assistant Professor in Ophthalmology and Visual Sciences  
(primary appointment)  
BA University of Illinois 2004  
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**Jing-Wei Huang, MD**  
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BA Harvard University 1971  
MD Washington Univ in St. Louis 1975  

**Jeffrey H Jacob, OD**  
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BS So Cal College of Optometry 1978  
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**Sharon Leslie Jick**  
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**Daniel Paul Joseph, MD, PHD**  
Associate Professor of Clinical Ophthalmology and Visual Sciences  
(primary appointment)  
MD Wayne State University 1992  
PHD University of CA Berkeley 1988  
BS Cornell University 1981  

**Krishna Priya Kalyam, MD**  
Instructor in Ophthalmology and Visual Sciences (primary appointment)  
MD Robert Wood Johnson Medical Sc 2012  
BS Rutgers University 2008  

**Stephen A Kamenetzky, MD, MD1**  
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BA Washington Univ in St. Louis 1967  

**MD Washington Univ in St. Louis 1970**  
MD1 School Not Listed 1970  

**Humeyra Karacal, MD**  
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MD Hacettepe University 1994  

**Michael A Kass, MD, MS**  
Bernard Becker Professor of Ophthalmology and Visual Sciences  
Senior Associate Dean for Human Research Protection  
BS Northwestern University 1963  
MD Northwestern University 1966  
MS Northwestern University Med 1966  

**Vladimir Jivkov Kefalov, PHD**  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Neuroscience  
PHD Boston University 1999  

**Deborah Lynn Kerber, OD**  
Adjunct Instructor in Ophthalmology and Visual Sciences  
(primary appointment)  
BS Southeast Missouri St Univers 1986  
OD University of Missouri 1992  

**Daniel Kerschensteiner, PHD**  
Associate Professor of Ophthalmology and Visual Sciences  
(primary appointment)  
Associate Professor of Biomedical Engineering (Courtesy)  
Associate Professor of Neuroscience  
PHD Georg August University 2004  

**Sangeeta Khanna**  
Instructor in Clinical Ophthalmology and Visual Sciences  
(primary appointment)  

**William F Kiefer Jr, OD**  
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BS Illinois College of Optometry 1973  
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**Mark Alan Kleindorfer, OD**  
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**Vivian Marie Kloke, OD**  
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BS Mckendree College 1986  
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John T Lind, MS, MD  
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MS Purdue University 2000  
BS Indiana University Indianopolis 1999  
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Anthony J Lubniewski, MD  
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BS University of Florida 1980  
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Professor of Neuroscience  
PHD University of Michigan 1984  
BS Brown University 1977

Lisa Marie Mackey, OD  
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OD University of Missouri 1993  
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Todd P Margolis, MD, PHD  
Alan A and Edith L Wolff Distinguished Professor (primary appointment)  
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PHD University of CA San Francisco 1983  
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Mary Kay Migneco, BS1, OD  
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BS1 University of Missouri 1986  
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BS University of Missouri 1986

Barry David Milder, MD  
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BS Mass Inst of Technology (MIT) 1969  
MD Washington Univ in St. Louis 1973  
Duane L Mitzel, MD
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Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)
Assistant Professor of Neuroscience
BA Florida Southern College 2001
PHD Washington Univ in St. Louis 2007

Robert F Munsch, MD
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)
BA University of Colorado Boulder 1974
MD Saint Louis University 1977

Raymond I Myers, OD
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)
BS University of Notre Dame 1966
OD Indiana University Bloomington 1970

Randall Earl Nacke
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)

Matthew Newman, MD
Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
MD Columbia University 1959
BA Vanderbilt University 1956

Paul F Nichols III, MD
Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
MD University of California 1982
BA University of California 1978

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BS Brown University 1976
PHD Harvard University 1983
PHD1 Harvard University 1983

MA Harvard University 1978

Jeffrey Robert Padousis, MD
Instructor in Clinical Ophthalmology and Visual Science (primary appointment)
BA Vanderbilt University 1995
MD Saint Louis University 2000

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Associate Professor of Ophthalmology and Visual Sciences (primary appointment)
BA West Virginia University 1993
MD West Virginia University 1997
BS West Virginia University 1993
MD1 West Virginia University 1997

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Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
PHD University of California 1980
BA Brandeis University 1975
MA Brandeis University 1975
MD University of CA Los Angeles 1982

John Craig Perlmutter, MD
Associate Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
MD Cornell University 1971
BA Queens College 1967

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Instructor in Ophthalmology and Visual Sciences (primary appointment)
BS1 Emory University 2000
MD Case Western Reserve Univ 2013

Mujtaba A Qazi
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MD New York University 2007

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Instructor in Ophthalmology and Visual Sciences (primary appointment)
BS Saint Louis University 1986
OD University of Missouri 1990

Prabakar Kumar Rao, MD
Professor of Ophthalmology and Visual Sciences (primary appointment)
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Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Energy, Environmental and Chemical Engineering  
BS University of Bombay 1972  
MS University of Bombay 1975  
PHD Virginia Tech 1980  
MD University of Miami 1988

Michael Dennis Rohde, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)  
BS Valparaiso University 1983  
OD University of Missouri 1987

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Associate Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)  
BA University of Michigan 1959  
MD Washington Univ in St. Louis 1963

Mark A Rothstein, MD  
Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)  
MD University of Utah 1991  
BA Williams College 1986

Michael B Rumelt, MD  
Assistant Professor Emeritus of Clinical Ophthalmology and Visual Sciences (primary appointment)  
BS Lamar University 1962  
MD Washington Univ in St. Louis 1966

Scott Geoffrey Sagett  
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)

Jonathan C Schell, MD  
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)  
MD Saint Louis University 2005  
BS Saint Louis University 2001

Frederick W Schwagger, OD, BS1  
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)  
OD Illinois College of Optometry 1957  
BS Illinois College of Optometry 1957  
BS1 Washington Univ in St. Louis 2000

Christopher G Seep, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)  
OD University of MO St Louis 1984

Gaurav Kirtil Shah, MD  
Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)  
MD University of Illinois 1993

James Banks Shepherd III, MD  
Associate Professor of Ophthalmology and Visual Sciences (primary appointment)  
MD Columbia University 1997  
BA Amherst College 1992

Priya Saigal Shetty, MD  
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)  
MD University of Michigan 2007

Arsham Sheybani, MD  
Assistant Professor of Ophthalmology and Visual Sciences (primary appointment)  
MD Washington Univ in St. Louis 2008

Steven M Shields, MD  
Assistant Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)  
BS Washington Univ in St. Louis 1981  
MD Washington Univ in St. Louis 1986

Alan Shiels, PHD  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Genetics  
PHD University of London 1983  
BS School Not Listed 1979

Howard Newton Short, MD  
Instructor in Clinical Ophthalmology and Visual Sciences (primary appointment)  
BA Washington Univ in St. Louis 1974  
MD Saint Louis University 1978

Carla J Siegfried, MD  
Jacquelyn E and Allan E Kolker M.D. Distinguished Professor of Ophthalmology (primary appointment)  
MD University of MO Kansas City 1989  
BA University of MO Kansas City 1989

Charles D Signorelli, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)  
OD School Not Listed 1957  
BS School Not Listed 1957

Morton Edward Smith, MD
Professor Emeritus of Ophthalmology and Visual Sciences  
(primary appointment)  
Associate Dean Emeritus for Post-Graduate Education  
Lecturer in Ophthalmology and Visual Sciences  
Lecturer in Pathology and Immunology  
MD University of Maryland 1960  
BS University of Maryland 1956  
Bradley Thomas Smith, MD  
Instructor in Clinical Ophthalmology and Visual Sciences  
(primary appointment)  
MD University of AL Birmingham 2002  
Claud Randall Snowden, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences  
(primary appointment)  
BS Illinois College of Optometry 1972  
OD Illinois College of Optometry 1974  
Craig H Sorce, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences  
(primary appointment)  
BA Southern Illinois University 1988  
OD University of Missouri 1992  
Florentina Soto Lucas, PHD  
Assistant Professor of Ophthalmology and Visual Sciences  
(primary appointment)  
PHD University of Alicante 1992  
Mark H Spurrier, MD  
Instructor in Clinical Ophthalmology and Visual Sciences  
(primary appointment)  
MD Washington Univ in St. Louis 1980  
BA Kansas State University 1976  
James F Strieter, MBA, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences  
(primary appointment)  
MBA Southern Ill Univ Edwardsville 1988  
OD School Not Listed 1954  
BS School Not Listed 1953  
Brian Patrick Sumner, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences  
(primary appointment)  
OD Illinois College of Optometry 1978  
Kenneth V Swanson  
Instructor in Clinical Ophthalmology and Visual Sciences  
(primary appointment)  

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Paul M Tesser, PHD, MD  
Associate Professor of Clinical Ophthalmology and Visual Sciences  
(primary appointment)  
PHD State Univ of NY Stonybrook 1990  
BS Mass Inst of Technology (MIT) 1981  

Matthew A Thomas, MD  
Professor of Clinical Ophthalmology and Visual Sciences  
(primary appointment)  
MD Harvard University 1991  
BS Harvard University 1977  
Linda Mei-Lin Tsai, MD  
Associate Professor of Ophthalmology and Visual Sciences  
(primary appointment)  
BA Northwestern University 1990  
MD Northwestern University 1995  
Robert Lawrence Tychsen, MD  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
John F Hardesty MD Distinguished Professor of Ophthalmology  
and Visual Sciences  
Professor of Neuroscience  
Professor of Ophthalmology and Visual Sciences in Pediatrics  
MD Georgetown University 1979  
BS Georgetown University 1975  

Gregory Paul Van Stavern, MD  
Professor of Ophthalmology and Visual Sciences (primary appointment)  
Professor of Neurology  
BS La Salle University 1989  
MD Pennsylvania State University 1993  
Gary Lee Vogel, OD  
Adjunct Instructor in Ophthalmology and Visual Sciences  
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BA University of Iowa 1970  
OD Ohio State University 1977  
David Edward Vollman, MD  
Assistant Professor of Ophthalmology and Visual Sciences  
(primary appointment)  
MD Ohio State University 2006  

William Lee Walter, MD  
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MD Ohio State University 1954  
BA De Paul University 1950  
Donald E Walter Jr, OD
Adjunct Instructor in Ophthalmology and Visual Sciences (primary appointment)
OD University of Houston 1972
BS University of Houston 1971

Stephen R Waltman, MBA, MD
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BS Mass Inst of Technology (MIT) 1961
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Professor of Clinical Ophthalmology and Visual Sciences (primary appointment)
BS University of Michigan 1977
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MD University of Illinois 1986
BS University of Illinois 1982

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OD University of Missouri 1987
BS University of Missouri 1979

Ming-Fong Agnes Wong, PHD, MD
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BA Boston University 1990
PHD University of Toronto 2001
MD McGill University 1994

Courses

Curriculum courses for Ophthalmology and Visual Sciences are listed below (p. 12).


First Year

Introduction to clinical ophthalmology begins in the first year with a lecture and practicum (peer exam) on taking an ocular history and performing an ocular exam. Emphasis is on ophthalmoscopy. Lectures and practicum session will be led by Dr. John Lind and Dr. Morton Smith.

Second Year

During the second year, students will receive a refresher lecture and lab on direct ophthalmoscopy as well as a lecture on ophthalmic manifestations of systemic disease and primary ocular diseases.

Third Year

Third-Year Clerkship Opportunities

In the third year, students are given the opportunity to spend four weeks of their surgery rotation on the ophthalmology service. The students work closely with the ophthalmology residents and review the differential diagnosis of the "red eye," how to interpret an ophthalmologic consult note, and how to handle ocular emergencies. During this rotation, there is again emphasis on the use of the ophthalmoscope. Additional clinical skills introduced to student rotators include the use of the slit lamp and indirect ophthalmoscopy. All third-year students must complete the "Case Studies in Ophthalmology for Medical Students" and attend the periodic "feedback/oral exam" session with Dr. John Lind and/or Dr. Morton Smith.

Third Year/Fourth Year

Ophthalmology Sub-Internship Rotation ("The Sub-Eye"). During the month of June prior to fourth year, students interested in pursuing a career in ophthalmology are encouraged to rotate on this intensive four-week rotation. Students will have personal indirect ophthalmoscopy lenses available for use on the rotation. Formal didactics and workshops will be used to teach students how to perform a detailed ophthalmic history and exam including mastery of advanced slit lamp techniques and indirect fundoscopy. There will be an intense schedule of both live and recorded lectures delivered by ophthalmology faculty members with post-lecture quizzes. Students will be expected to perform daily required reading. Retention and understanding of reading materials will be gauged by frequent quizzes. Students are strongly encouraged to present a case at the department's Grand Rounds. By the end of the rotation, students will be expected to function at the level of a first-year ophthalmology resident.

Curriculum Courses

M50 Ophth 655A Ophthalmology
This course provides an introduction to clinical ophthalmology with emphasis on the history and physical examination specific for diseases of the eye. Common ocular diseases, ocular manifestations of systemic disease and ocular emergencies are reviewed.
Credit 3 units.

M50 Ophth 740 Ophthalmology Clerkship
In the third year, students are given the opportunity to spend four weeks of their surgery rotation on the ophthalmology service. At least two weeks are spent in the general ophthalmology clinic and the remaining two weeks are spent in sub-specialty clinics of neuro-ophthalmology, pediatric ophthalmology, glaucoma, cornea and external disease or retina in the outpatient eye clinic examining patients with ophthalmology residents. The students work closely with the ophthalmology residents and review the differential diagnosis of the "red eye," how to interpret an ophthalmologic consult note, how to handle an ocular emergency in the emergency room (chemical burns,
etc.) During this rotation, there is again emphasis on the use of the ophthalmoscope and a comprehensive text is used by the students during the rotation. Credit 38.5 units.

**M50 Ophth 801 Ophthalmology**
This elective is for senior students who plan to apply for a residency in Ophthalmology. In accordance with any sub-internship, medical students will be expected to function at the level of a beginning first-year ophthalmology resident on this rotation. The students will rotate through the resident eye clinic and the subspecialty clinics of the full time faculty of the Washington University Medical School Department of Ophthalmology and Visual Sciences (e.g., neuro-ophthalmology service, cornea/external disease service, etc.). The first day of the rotation will consist of an orientation day in which students will receive extensive didactics and participate in workshops to learn the basics of a complete ophthalmic history and examination. Students may opt to check-out indirect ophthalmoscopy lenses that may be used for the month to facilitate the acquisition of fundoscopy skills. During the rotation, the student's responsibilities range from observation (including observing surgery) to working at a resident level and completing full eye examinations. There will be a rigorous academic curriculum for the rotation including a weekly case presentation, bi-monthly wet lab sessions with a resident, weekly attendance at grand rounds, and a mix of medical student-oriented and resident-oriented conferences. On day one, students will receive a rotating call schedule for the entire month. A medical student is expected to be present at all times to assist the primary call ophthalmology resident during the rotation. By the end of the four-week rotation, the student is expected to be proficient in taking an ocular history and performing a complete eye exam including slit lamp biomicroscopy and indirect ophthalmoscopy.

**M50 Ophth 816 Away Rotation in Ophthalmology**
This four-week elective is for senior students from medical schools across the United States who are in good standing at their home institution and who are planning to apply for a residency in ophthalmology. The students will rotate through the resident eye clinic and the subspecialty clinics of the full time faculty of the Washington University Medical School Department of Ophthalmology and Visual Sciences (e.g., neuro-ophthalmology service, cornea/external disease service, etc.). In exchange for a refundable deposit, students may opt to check-out indirect ophthalmoscopy lenses that may be used for the month to facilitate the acquisition of fundoscopy skills. During the rotation the student's responsibilities range from observation (including observing surgery) to working at a resident level and completing full eye examinations. Didactics will include weekly case presentation sessions to Dr. John Lind or Dr. Morton Smith, weekly attendance at grand rounds, and a mix of medical student-oriented and resident-oriented conferences. Also, there will be medical student-oriented workshops to learn the basics of the slit lamp and indirect ophthalmoscopy. On day one, students will receive a schedule of conferences that they are expected to attend during the month. By the end of the four-week rotation, the student is expected to be proficient in taking an ocular history and performing a complete eye exam including slit lamp biomicroscopy and indirect ophthalmoscopy. The final grade of the student is determined by the course director with input from the residents, fellows, and faculty members of the particular service(s) through which the student rotated.

**M50 Ophth 900 Research Elective - Ophthalmology**
Research opportunities may be available. If interested, please contact the Department of Ophthalmology.